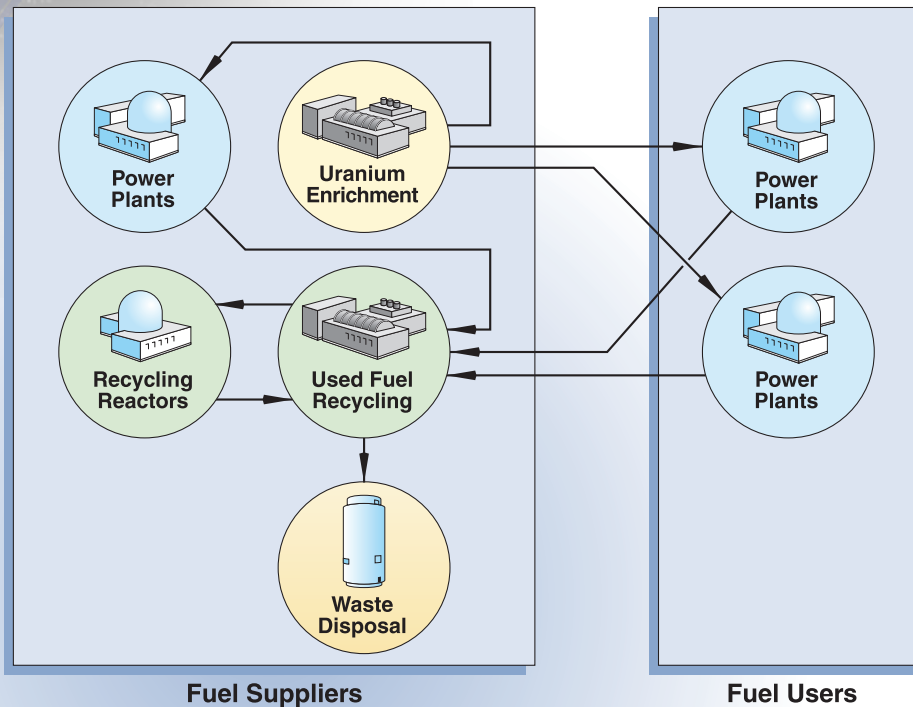




## United States Department of Energy

*A possible reliable fuel services arrangement*



## A Reliable Fuel Services Program

Under the Global Nuclear Energy Partnership (GNEP), a consortium of nations with advanced nuclear technologies would provide fuel and reactors sized to meet the grid and industry needs of other countries. By participating in GNEP, growing economies can enjoy the benefits of clean, safe nuclear power while minimizing proliferation concerns and eliminating the need to invest in the complete fuel cycle (e.g., reprocessing and enrichment). In cooperation with the International Atomic Energy Agency, participating nations would develop international agreements to ensure reliable access to nuclear fuel.

This international consortium is a critical component of the GNEP initiative to build an improved, more proliferation-resistant nuclear fuel cycle while increasing energy security. This approach would permit increased access to the benefits of nuclear energy while enhancing global security.

### ***Reducing the incentive to spread uranium enrichment or reprocessing technology***

The challenge stems from the fact that certain technologies used to produce nuclear fuel, or separate out plutonium from used fuel, could be

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used to produce material for a nuclear weapon. For example, highly enriched uranium (HEU) can be created by enriching uranium beyond the level required for nuclear power plant fuel. (Fresh uranium fuel for power reactors is not enriched enough to be weapons-usable.) Another potential source of weapons-usable material is plutonium extracted from used fuel inventories through a recycling program.

The current international nonproliferation approach could be improved by reducing the motivation for countries seeking nuclear power to develop their own uranium enrichment or fuel recycling capabilities. These countries – fuel users – could receive the benefit of having a reliable supply of reactor fuel from fuel suppliers without having to make the significant infrastructure investments required for enrichment, recycling and disposal facilities.

### ***How the system would work***

Under a leasing approach, fuel suppliers would provide fresh fuel to fuel users for their conventional nuclear power plants. These conventional plants could be either existing or next-generation power reactors or new grid-appropriate reactors to be developed under GNEP.

International fuel leasing arrangements, where the supplier takes responsibility for the final disposition of the spent fuel, will assure fuel availability. While the spent fuel would not necessarily have to be returned to the fuel cycle country that supplied it, the supplier country would retain the responsibility

to ensure that the material is secured, safeguarded and disposed of in a manner that meets shared nonproliferation policies. International partnerships to further develop fuel services using advanced recycling would be based on productive approaches, incentives and safeguards.

To encourage fuel users to participate, they must have assurances of credible international fuel supplies backed by designated suppliers and governmental entities, as well as adequate safeguards integrated into the reactor designs. These efforts backstop the proven performance of well-functioning international commercial nuclear fuel sectors.

### ***Steps underway***

The U.S. has already committed 17.4 tons of highly enriched uranium that will be blended down to low enriched uranium and used to establish a fuel reserve to back up supply assurances. In June 2007, the Department of Energy awarded a contract to down blend the HEU and store the resulting LEU. The down blending is scheduled to begin this year and be completed in 2010. It will produce about 290 metric tons of LEU, most of which will constitute the Reliable Fuel Supply. Other countries have expressed interest in contributing to a fuel bank. Because it will take time to develop the necessary technologies to support the fuel leasing approach envisioned under GNEP, the U.S. is reaching out to international partners to establish an interim reliable fuel services approach consistent with GNEP's objectives.

